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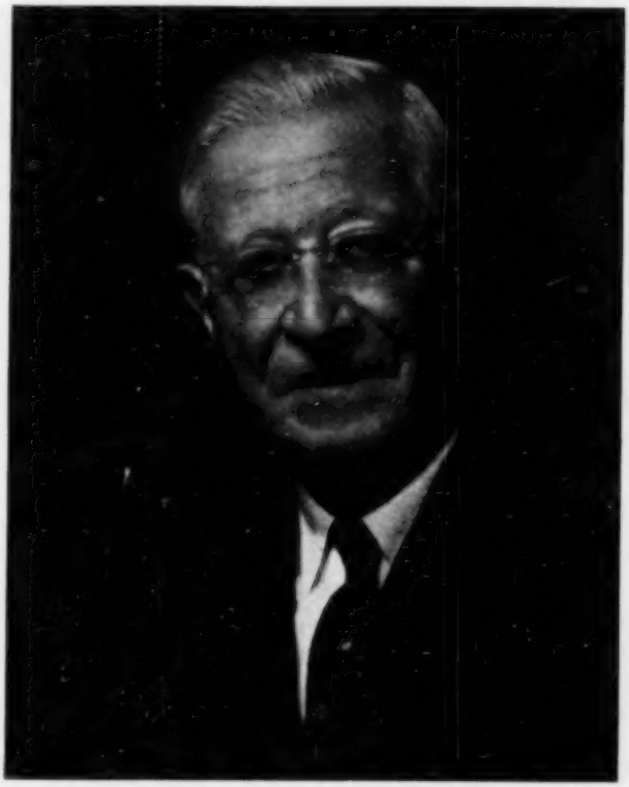

DR. CARL S. MINER

Awarded Honor Scroll of Chicago AIC Chapter

(See page 421)

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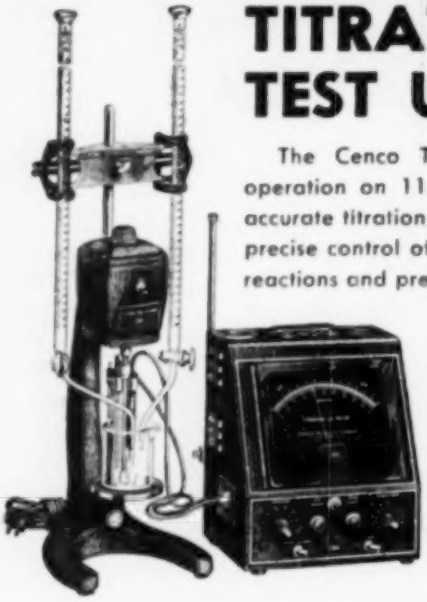

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SCHEDULED FOR EARLY ISSUES

Employment Discrimination in the Chemical Industry, by Albert J. Weiss
From Industry to Teaching, by John Happel, F.A.I.C.
The Increasing Responsibilities of the Chemist, by Ralph Lamenzo, F.A.I.C.
The Chemist Should Not Be An Introvert, by Kenneth C. Longman, MAIC
Employment Project News
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Why Politics? Dr. Charles C. Price
The Easy Way and the Individual, Leon M. Prince, Jr., F.A.I.C.

IN THIS ISSUE

Cover Picture

(The Chicago Chapter, AIC, presented its Honor Scroll Award to Dr. Miner, at its meeting, October 13th, Chicago, Illinois. The dinner program contained the following sketch.)

DR. CARL S. MINER, director and founder of the Miner Laboratories, Chicago, is well-known for his many contributions in chemistry, particularly the development of chemical processes for the utilization of agricultural materials. He is often referred to as "the father of the furfural industry."

Among his other important contributions are the preparation of low cost riboflavin supplement from fermentation residues, development of corrosion inhibitors for glycerol antifreeze solutions, formulas for writing inks, hydrogenation of carbohydrates, dehydration of vegetables, quick cooking of cereals, hectograph rolls, exploded vermiculite, and many improvements in beverages. In recognition of these achievements, he was awarded the Perkin Medal of the Society of Chemical Industry in 1949 and the Doctor of Science degree by Coe College in 1948.

To those who know him well, however, his greatest achievements have been not with things but with people. It is for his efforts in advancing the professional interests of chemists and particularly in awakening and guiding professional attitudes in younger chemists that he is being awarded the Honor Scroll of the Chicago Chapter, AIC.

Dr. Miner has always accepted and executed his duties as chemist with an acute awareness of the professional man's ethical responsibility. In so doing, by simple example, he has shaped his associates in professional attitude and action to a degree that is difficult to assess—the imprint on professional character has been disseminated far beyond the original circle where it was first felt.

(See pages 427-438 for papers presented at the Honor Scroll Award to Dr. Miner.)

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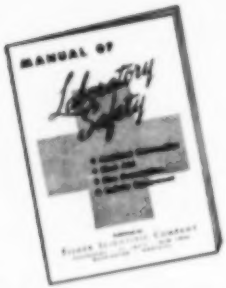

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EDITORIAL

Chemists and Their Documents

Dr. Julian F. Smith, F.A.I.C.

Science Head, Scientific Information Division, Office of Naval Research, Washington 25, D. C.

THE primary product of research is paper bearing words and symbols. Better foods, fibers, and building materials, to feed, clothe, and shelter mankind, or bombs to blow him past needing earthly goods, do not result unless the records are utilized.

The age is past when chemistry's Berezeliuses and Liebigs personally reported their discoveries to each other in abominable script. With the age went its simplicities. Modern editors tear their hair, not over illegibly scrawled manuscripts, but over the tremendous quantity and the sometimes pitiful quality of papers submitted for publication.

The new age has hundreds of millions of recorded observations and hundreds of thousands of technical men, with interests so intricately interwoven that investigators follow trails into fields they never dreamed of entering. A New Zealand meteorologist on his way to America sat next to a missionary at lunch in the Fiji Islands. From this chance encounter he learned that priceless Pacific island weather records, dating back several decades, were stored in a mission board office in Boston.

Observations of bats in flight turned up facts of great significance in supersonic physics. A hostile mold in a peaceful bacterial culture led to new chemicals which mean life to wounded men on battlefields across the world. No one knows how many profitable excursions into strange fields have been missed for lack of the will or the wit to follow the trails.

A potent factor in making the most of scientific observations is searching the literature. But the amount to be searched has grown far faster than the aids for searching it. The searcher needs an intensive course in maze-running, and even then he is likely to get lost among the abstracts, subject indexes, formula indexes, decimal and nondecimal classifications, punched card codes and electronic brains. Machine-happy enthusiasts tell him all he needs to do is follow them into an era of push-button searching, but he finds there are no adequate codes from which to know which buttons to push.

Code-happy enthusiasts tell him just to follow them into "the logic of organizing knowledge", but he runs into a different logic of organizing knowledge for every use of the or-

ganized mass, and uses are legion. At present the machines are far ahead of the codes, we can make only a feeble approach to utilizing all the mechanical aids already known.

There stands today's documentation problem. Something needs to be done about it, and efforts are in progress. Shorter, better written documents would help; so would elimination of trivia which clutter the record in great masses; so would better means of putting machines to work. Only by progress on all fronts can we shift the present unsearchable riches of scientific knowledge over to a slowly growing fraction which is searchable.

One-Hundredth Anniversary

September 25th was the 100th anniversary of the Pennsylvania Salt Manufacturing Company, which was celebrated with a week-long series of events at the company's Whitemarsh Research Laboratories at Chestnut Hill, Pennsylvania. In 1850, five young Philadelphia Quakers started the company with a patent for a process of making alkalies from salt, $100,000 raised among friends, and a plant site over salt deposits. Today the company is producing at a rate of $38,000,000 worth of products annually. Pennsalt has published a one-hundred page book recounting its history, entitled "Prologue to Tomorrow," by Robert Keith Leavitt.

Dubowski Appointed Assistant Director

Dr. Kurt M. Dubowski, M.A. I.C., is now assistant director of laboratories of The Norwalk Hospital, Norwalk, Connecticut.

This Thing Called Science

Dr. Carl S. Miner

Director and Founder, The Miner Laboratories, Chicago, Illinois

(Presented when the author received the Honor Scroll of the Chicago Chapter, AIC.)

SINCE science has become so important a factor in the waging of war or the maintenance of peace(at the moment it appears difficult to differentiate the one from the other) it is today more than ever a moot subject.

Therefore, it seems suitable for those who call themselves scientists to examine the nature of this thing with which they are so intimately concerned. Is it a sacred cow without any good reason for such a status? Is it the hope of mankind as has been more than once suggested? Or is it a "black night" as it was to the daughter of the old alchemist in Christopher Fry's current play, "The Lady's Not for Burning"?

So it seems proper to evaluate this thing called science. To be realistic we must do this not only from the narrow viewpoint of practitioners but even more, in so far as may be, with the minds and eyes of those who are laymen where scientific matters are concerned. After all, the laymen are in the vast majority and it is their consensus which, in the end, must determine the place of science in the world.

In selecting the title of this talk, I have tried to commit myself to no specific treatment of the subject. Yet it seems that there is involved a responsibility to give some indication of what I am talking about, or not talking about (either or both). We might list and evaluate the many definitions of science which have emanated from more or less authoritative sources. If that causes apprehension, it is groundless for no such ordeal is planned. The definitions are too many and too diverse. Instead, I offer a simple, generalized statement of the thing I shall call science. One definition recently published is to the general effect that science is a series of concepts which result in a series of experiments which results in new concepts and new experiments, and so on.

I am not fully in accord with such a definition. I would suggest a somewhat different one. Science has to do with the physical laws of the universe—particularly our earth, its substance and its living inhabitants from the smallest to the largest, and this definition is not intended to include human social relationships. It includes the knowledge we have acquired within this area and the means we have developed for extending this knowledge.

This definition is offered merely

for my selfish purposes. It is not intended to indicate that I feel justified in excluding the social sciences but merely that I am not in position to cover them.

I shall try to suggest what science is in the minds of others than those who consider themselves its practitioners, for that phase of the subject interests me most.

What Does Science Mean?

What does "science" mean to the government, to the legislator, to the non-scientific professional and business man, to the heads of the armed forces, and most important to all—to that mystical but definitely existent individual, "the man on the street."

We cannot fail to recognize that our government through its various departments affects science as we are defining it, most vitally. That much science, both basic and applied, is supported by government money to a great extent, is obvious to all. Yet when a government agency talks about science, it is usually talking about some practical aspect of science which affects the activities of that specific agency, either favorably or unfavorably. For example, currently the F.D.A. would be vastly interested in any scientific developments that would aid it in determining just how much of various pesticidal agents can be introduced into the human diet without adverse effect and in methods for analyzing foodstuffs to determine the residual quantities of such agents.

Legislators on the whole are not conversant with science. A conspicuous example of a legislator who was a scientist is the case of the one-time Senator from North Dakota, Dr. Ladd, who as state chemist was responsible for the first pure paint law and for some of the most stringent of the early food laws regulations. He ultimately became a U.S. Senator and served efficiently. However, as an example of the normal legislator's relation to scientific matters, one can cite the fact that when the Patent Office was asked to grant a plant patent on a newly discovered bacterium, the commissioner and court took the position that, since the members of Congress were not aware of the fact that bacteria are plants, they did not plan to have the plant patent act cover newly discovered bacteria. Therefore, the application was denied.

As further evidence of the average legislator's understanding of science, I offer the statement (on excellent authority) that one of the most prominent United States senators recently expressed to an eminent scientist the opinion that any desired scientific objective could be readily and speedily attained by the simple expedient of hiring a group of scientists and furnishing them with unlimited funds. The eminent scientist went on record promptly and emphatically to the effect that such an idea was arrant nonsense.

I suspect that the leaders of the

armed forces think of science primarily as the handmaiden of war and judge its importance by its efficiency in producing new offensive and defensive devices—atom bombs, hydrogen bombs, explosives, and agents for chemical and bacterial warfare. In this connection, one might recommend to them the reading of the Nichols-Browne play of 1929, "Wings Over Europe", which told the story of a successful peace offensive waged by scientists who forced a general peace treaty on the heads of the world governments by threatening to destroy all the capitals of leading nations with a super-destructive agency developed secretly by a world union of scientists. It is interesting to imagine what might have happened, if the atom bomb had been developed entirely under the control of the scientists who produced it and used only in accord with their wishes. One can envision a successful peace offensive which would have prevented war for many years.

Speaking only of groups and ignoring individuals, it seems not unjust to suggest that to the lawyers, science means ordinarily the means of winning cases through the use of scientific (so-called "expert") evidence, which they always hope will fit perfectly their own plans for offense or defense.

To the doctor it means new agents for the control of disease, and certainly his activities have been greatly aided by the advances of science in recent years. At this point it is with an almost superhuman effort that we resist the impulse to turn aside to enumerate the virtues of modern science in the field of therapeutics.

We are not those best fitted to say what science means to its practitioners, yet we must admit in fairness that its economic aspects are paramount in the minds of many scientists. Certainly, with most of us, making a living is a vital issue and therefore the financial returns from the scientist's work become of great practical importance. Yet I can testify that there are scientists to whom the income from their work is not the primary objective. A chemist came to me long ago for advice as to the patenting of an invention. He was a university man doing both teaching and research. He had offered his invention to the university and had been informed that he might do as he pleased with it. I told him that in the public interest the invention should have patent coverage; that it was his property and he could handle the matter as he pleased, either own the patent himself or assign it to a non-profit corporation for the benefit of research. I felt under obligation to tell him that I believed the invention would have great value— perhaps as much as half a million dollars. His answer was, "I can't be bothered." Some of you may gain a certain amount of malicious pleasure from

learning how far wrong I was. The patent ultimately issued, was assigned to the non-profit corporation, and during its life the royalties collected for operation under it amounted to eight and a half million dollars. So you see there are, or at least have been scientists to whom money is relatively unimportant.

A Change in Attitude

Perhaps the most radical change in attitude toward science is that of the business world. If it is considered a sacred cow anywhere, it is there. It is quite possible for many of us to remember a time when, if the business man thought of science at all, it was in terms of a routine analytical laboratory which was under the supervision of the factory superintendent, and which actually was itself just a factory for turning out process-control analyses by the scores. Perhaps, if it was especially well-manned, it might occasionally be asked to analyze a competitor's product, but that was about all that the businessman thought science could do for him.

The vastly changed present situation is well-known. "Science" and "Scientists" are words to conjure with in the world of finance. To learn, as I did recently, of a company doing many hundred million dollars of business annually and having no research department is like meeting a plesiosaurus walking down Wall Street. Such situations are today almost non-existent. It is a much commoner experience to learn of a company which is like the parishioner who planned to save his soul by building a church. They try to save their economic souls by spending immense sums on research buildings, equipment, and personnel, without giving such expenditures the same intensive study and supervision that normally protect expenditures for new manufacturing facilities.

Certainly if business is wrong at all in its attitude toward science, it is in making it too much of a sacred cow and feeding it perhaps not too lavishly but at least too carelessly, frequently offering excellent examples of the effect of a badly balanced diet.

Primarily this change of heart has been the result of evidence of the value of research, which evidence has been accumulating so rapidly latterly. Today it is not uncommon practice for corporations to devote much space in their annual reports to statements regarding their research, past, present, and future, and to brag about the size of their research expenditures. It is acutally easier to sell the average board of directors on a research expenditure than on almost any other type of expense.

As to the attitude of business toward scientists—there is today practically no position in the business world to which a scientist may not aspire with the feeling that his scientific training and experience are a

help, not a handicap to him.

For the head of research to be a vice president is now the rule rather than the exception and many a company has a scientist as its president or as a member or chairman of its board of directors.

Science to the Man on the Street

Now we come to the really important phase of the subject. What does this thing called science mean to the man on the street? I have been collecting items from advertising and sales statements in which the words "science" or "scientific" are used and endeavoring to decide what they mean to the people who use them, which may be a reasonably good way of determining what science means to the man on the street.

Since one of my good friends is the president of the Scientific Oil Compounding Company, he was one of the first witnesses I called (on the telephone). I said, "Otto, why did you name your company the *Scientific* Oil Compounding Company—why Scientific?" The answer was immediate and definite, "Because I was young and a (deleted) fool." Not helpful, I should say.

A few days later I came out of the Terre Haute hotel and was amazed to see a sign in the window of the garage next door which read, "Scientific Wheel Balancing." I lacked the courage to ask the proprietor what the word "scientific" meant to him in that connection, but he probably would have told me that he had an especially accurate mechanical means of performing that operation.

Probably you have listened to the radio advertising with respect to the superlative mildness of a certain cigarette as proven by scientific tests conducted by three anonymous consulting laboratories. It may have raised in your mind, as it did in mine, the question as to the possibility that the word "scientific" might be unnecessary since if the tests prove the point it seems highly improbable that they are unscientific.

A few random examples of the use of words in advertising are : "Best Oil Science Can Produce" for lubricating oil; "Smell it! It will appeal to you! This is scientifically manufactured," introducing a new perfume; and, in another garage window, "Scientific Carburetor Diagnosis" and "Scientific Engine Diagnosis." This list could be expanded almost *ad infinitum* from our daily experiences. Certainly the evidence is strong for the conclusion that our neighbor, the man on the street, thinks favorably of science and that he perhaps is one of those who are much more likely to regard it as a sacred cow than are the scientists themselves.

Perhaps the best evidence of the nature of general public opinion regarding science is to be found in the newspapers and magazines. There is probably the most accurate and con-

centrated evidence we can hope to obtain. The data from this source are an important aid in reaching an opinion on the standing of science in the lay mind. In collecting information, I have had the help of science writers on the Chicago daily papers through the good offices of our colleague Dr. Gustav Egloff. The consensus is that during the past ten years the space allotted to science in non-scientific publications has increased by about 200 per cent. During the same period the membership in the National Association of Science Writers has increased from twelve to over eighty. There is today practically no important metropolitan paper which does not have at least one man on the staff who carries a title such as science writer or science editor. It has also become practically essential for every important magazine to have a science editor, and the coverage of science in the weekly and monthly periodicals is surprisingly accurate and extensive. So important has this branch of reporting become, that there are annual Science Writing Awards of $1000 each for the best news story and the best magazine article on science published during the year. The list of judges of the awards published recently in *Science*, which includes among others the president of the National Academy of Sciences, the editor of the *Saturday Review of Literature*, a past president of the National Science Teachers Association, and the editor of *Science*, indicates the importance which science reporting, and consequently these awards, have come to have. Apparently also science fiction is the hottest thing in the pulp trade. Literally dozens of new publications of this sort have sprung up in the last year or so.

In the search for current meanings of the word "science" it seemed that a profitable source of data might be the rules of the "Science Writing Awards", and so I wrote to Dr. Meyerhoff, editor of *Science*, one of the judges of those awards. He sent printed announcements of the rules, and they gave no indication as to the exact types of subjects which would be considered as within the field of eligibility, although specific details such as dates of publication and the like were well-defined.

One of the newest books on a phase of science is *Science and the Goals of Man, a Study in Semantic Orientation*, by Rapaport. In the introduction, another eminent semanticist, Dr. Hayakawa, lists as the preferences of scientists, "The preference for truth telling over lying which is so much a part of scientific tradition that no machinery is needed (as it is in almost all other human affairs) to enforce honesty; a preference of statements capable of verification over statements that must be taken on the authority of the speaker; a preference of logical order over the chaotic assemblage of facts." Let us

hope that we may justify Dr. Hayakawa's good opinion.

Summed up, this seems to give us a sound basis for the judgment that science has come to have in high degree the respect and esteem of its public and that it certainly is receiving its fair share of what great corporations pay for under the name of "publicity."

As a consequence of all this publicity there is an understanding of and a sympathy for science and the activities of scientists which is bearing most desirable fruit and can, if efficiently utilized, be very valuable in the solution of specific problems such as the deferment of scientists in war time or the use of government money in the support of research.

Actually we are occasionally astounded to realize the depth and breadth of lay understanding of scientific matters. A recent radio program reported the finding of father's lost watch by the youngster's Geiger counter (from his atomic energy kit) because the watch had a luminous dial!

It was not my thought to offer profound pronouncement on This Thing Called Science. I planned merely to survey, somewhat superficially, its current status and to alert some of the members of the chemical profession to the importance, deserved or otherwise, of the position which science and scientists now occupy in the opinion of their fellow men. Full realization of this situation cannot fail to be somewhat inspiring and encouraging to those who practice science and who are likely to continue doing so for the rest of their lives. If science is a sacred cow anywhere, it occupies that position in the minds of the business man and the man on the street rather than in the thoughts of scientists.

Dependents Protected

The Standard Oil Company (New Jersey) announces that dependents of employees called into the armed forces will be protected against financial hardship by a liberal military service plan. Under the program, an employee entering the armed services, is granted a military leave of absence from the company. His dependents will receive monthly payments from the company during his absence in active military service. These payments will be equal to the difference between the employee's regular company pay and what he is paid in the service, with a maximum fixed at one-half the employee's regular pay. An employee with more than one year's service with the company receives a payment equal to two months' salary when he enters military service. Group insurance may be continued for the first ninety days of military service. During World War II, more than 10,000 employees of Jersey Standard were covered by the earlier military service program.

Minerology—A Phenomenon of the Midwest

Dr. F. N. Peters

Vice President, The Quaker Oats Company, Chicago, Ill.

(Presented at the Honor Scroll Award to Dr. Miner.)

SOME achievements are tangible, others no less real, defy precise measurement or evaluation. Such achievements as the production of furfural, a riboflavin supplement, better writing inks, printing rollers, superior antifreezes are relatively simple to describe and easy to understand. A difficulty does arise in understanding how one man could create these things and yet play so much tennis, spend so much time in Michigan, or take a host of pictures of marine life in Florida, take so many hours or even days counseling and guiding impractical inventors and chemical neophytes. But it was done and it is for these accomplishments that we salute Dr. Carl S. Miner.

Scientific achievements are readily appreciated and honored in this materialistic world of ours, because they can be seen, handled, weighed, and sold. But there are others—intangible ones; too seldom honored, which involve the development of new mental concepts; which produce a change in the habits of thinking of men. These achievements are hard to discover, and defy any evaluation in terms of money.

The contributions of our guest of honor lie in both fields. Let us consider the simpler one first. I have mentioned some of them but, if evidence is needed, there are patents and numerous articles which amply testify to the many contributions made by and under the direction of Dr. Miner. Since the birth of The Miner Laboratories in 1906, there has come from that organization a continuing stream of patents. Many do not bear the name of Dr. Miner, but they all bear his imprint. His name does appear on patents covering such diverse products as alimentary pastes (macaroni to the layman), cake icings, depilatory pastes, duplicating sheet, feedstuffs, manufacture of furfural, production of furfuryl alcohol, fungicides, preservatives, perfumes, quick-cooking cereals and quick-drying ink, riboflavin supplement, resins, solvent for nitrocellulose, and exploded vermiculite.

Dr. Miner was a farm chemurgist long before the word was coined, and his work with furfural, which comes from corncobs, oat hulls, and many other farm products, has received wide publicity. Some of the younger chemists may not know that not only was furfural manufacture developed

under the direction of Dr. Miner, but the product was advertised, sold, and invoiced by The Miner Laboratories from 1922 to 1931. The basic merchandising policies established for furfural in those days have been maintained to a large degree throughout the subsequent years.

Today, we take quick-drying inks as a matter of course, but I well remember the struggles in The Miner Laboratories to produce an ink that would dry quickly on paper but not on the pen point. Each time a new formula was developed, the fountain pens of the laboratory staff were used as guinea pigs. Many inks worked very well in every pen but mine and I nearly lost the friendship of the project leader because I would not discard my pen. Secretly, I hoped he would buy me a new pen. Twenty years have passed. The ink developed at that time achieved national distribution. The project leader is chief chemist of one of America's largest pen manufacturers. I am still using my old pen.

There was a time, again beyond the memory of our younger chemists, when the use of a permanent antifreeze in an automobile was an invitation to trouble. The radiator would corrode, the impeller blades of the pump would literally disappear. At one time, Dr. Miner had so many automobile radiator and pumps around the laboratory, there was no space left for writing reports. But an efficient antioxidant was discovered and now we have anti-freeze in our cars the year around.

Today, we are familiar with the ability of molds to produce useful products. Penicillin, aureomycin, bacitracin are examples. But there was a time when the role of micro-organisms as producers of useful chemicals was not so well appreciated. But it was at that time that Dr. Miner suggested that riboflavin might be recovered from low-cost fermentation residues. Since that time, countless tons of riboflavin supplement, made under his patent, have been added to millions of tons of animal feed.

When a South American government wished to increase the use of a particular type of coffee grown in that country, it came to Dr. Miner for help. Coffee bags, coffee blends, and coffee roasters replaced the automobile radiators as the decorative motif of The Miner Laboratories.

Recently, a number of articles have appeared in the financial press about improved insulating bricks made with porous aggregate such as expanded vermiculite. Dr. Miner developed exploded vermiculite many years ago. Before most of us knew why we did or why we should drink orange juice. Dr. Miner had squeezed a carload of oranges and could recognize the place of origin of the fruit from its vitamin C content.

Things to Evaluate

These are merely typical material contributions to our national products, made by this man. At the same time, Dr. Miner was writing articles entitled, "Residue from Hydrolytic Products of Starch," "Feeds for Livestock," "Chemical Jurisprudence," "Problems of Non-flour Cereal Chemists," and "Research and Profits." These and other articles by him appeared in a wide variety of journals, the American Chemical Society publications; *Chemical & Metallurgical Engineering*; *Feeding Stuffs*; *Rubber Age*; *Cereal Chemistry*; *Oil and Soap*; *Science Illustrated* and *Filmo Topics*.

Who can measure the contribution made by these papers? Likewise, what yardstick can be applied to Dr. Miner's contribution to the Chicago Section of the American Chemical Society, as member of many committees and as chairman in 1922; to the Chicago Chemists' Club; to OPRD during World War II as a member of its Chemical Referee Board; and to the Baruch Rubber Committee?

Even more difficult to adequately evaluate is that which I believe is Dr. Miner's greatest scientific achievement—his success in making industrial executives realize the importance of scientific research in their own companies. Dr. Miner has altered the thinking pattern of more than one board of directors. What has happened to a company which in its 1940 annual report made no mention of its research laboratories or products due to research, but which in 1950 devoted several paragraphs and pages of pictures to its research facilities and the products developed by its scientific personnel? One answer is "Miner was here." In his years of association with top management of scores of large companies, he has constantly preached the doctrine of giving more responsibility to technically trained men. "Make your top technical man a vice president—put a scientist on your Board of Directors." As he has prodded management toward recognition of scientific personnel, so has he urged his own chemists by action and deed to fit themselves for executive and managerial responsibilities. How much has this meant to companies and the chemists? No one will ever know. You have heard about the battle that was lost because of the want of a horseshoe nail. There are research laboratories wining industrial battles today that owe their creation to suggestions made by Dr. Miner years ago. There are industrial executives who would not be in their present positions if Dr. Miner had been missing twenty years ago.

This influence, I call it Minerology, has had a profound effect on the status of chemists throughout the country and particularly in the middle west. This in my judgment is his greatest achievement. It is this

that causes men who worked under Dr. Miner ten, fifteen, or twenty-five years ago and who today are research directors and executives in their own right—it is this influence which causes them today to feel honored when C. S. Miner refers to them as "my boys."

Chemist in The Kitchen

Dr. Barbara Miner Parker, F.A.I.C.

Entomologist, The Miner Laboratories, Chicago, Ill.

(Dr. Miner's daughter revealed this intimate picture, when she spoke at the Chicago Chapter's Honor Scroll Award Meeting.)

DR. Peters and Dr. Evans have discussed Miner, Sr. as Miner the Man and Miner the Chemist. My subject is what happens when you have Miner in the home. Probably because he has in his work been much concerned with food chemistry, his chemical activities at home seem to have centered in the kitchen. I am sure that quite literally dozens of food products in process of development have been cooked or tasted in the Miner kitchen. A chemist's child learns early to view with reserve small bits of anonymous food stuff which are pushed at you usually with the comment, "This isn't bad at all. Taste it and tell me what you think." I have occasionally suspected that samples brought home from the laboratory for the family to taste might be those the laboratory staff preferred not to taste. Only recently I had the dubious pleasure of tasting a little block of dehydrated corned beef hash which was only eight years old and still thoroughly dehydrated. It tasted exactly as you might expect—dry, hard, and rancid. I would like to go on record as saying that many food products which ultimately emerge after years of research and development as delectable morsels, are perfectly gruesome when they take their first faltering steps, and that is when the chemist's family tastes them!

I remember the dehydrated food era when at almost every Miner meal something appeared which had once been and, in some cases apparently still, was dehydrated. This has left a scar on my soul. I shall probably always view dehydrated foods with indifference verging on antipathy. There were other periods during the years I lived at home when particular type samples were in good supply or when some project was seething with activity, when certain foods appeared on the Miner table in great abundance. For instance, there was a spell when we had cereals at every meal; subsequent periods featured whipped cream by the gallon every

weekend or desserts of one spoonful each of half a dozen different flavors of custard pudding. Unfortunately, the puddings and the whipped cream were not concurrent. At other times we had baby food, sometimes as dessert; sometimes for the main course. Baby food is nice for babies, but personally I do not consider strained apricots for dessert or pureed meat mixed with squashed-up vegetables for an appetizer, exciting.

In most homes, freezers and refrigerators harbor food. In the Miner household you never know what strange non-food objects you may uncover. Off hand, I recall seeing in our freezer thermos bottles, powder boxes, synthetic sponges, sheets of plastic and other oddities which Miner, Sr. had carried home to have readily available for observation. I was talking about this to one of my cousins who lived with my family while her house was being built, and she said, "Oh, I know what you mean, I'll never forget the time I opened the refrigerator and saw all the dead mice stored there in jars." These were not experimental; they had been trapped at the laboratory and were being kept in cold storage pending delivery to a friend who owned pet mice-eating snakes.

You can see that life for a chemist's family often has the charm of the unexpected. Although I have expressed this lightly, I do feel that the manifestations on which I have commented are typical of the enthusiasm, and the vitality, which make Miner, Sr. an exceptionally entertaining and successful parent as well as a competent consultant.

Amalgamated Appoints Pennie

Hillary Robinette, Jr., F.A.I.C., research director of Amalgamated Chemical Corporation, Philadelphia, Pa., announces that Robert N. Pennie, who received the degree in chemistry in June 1950 from Temple University, has been added to the research staff. Prior to attending Temple University, Mr. Pennie was employed in the laboratories of the Philadelphia Electric Company. During World War II he served overseas with the 42nd Infantry Division. His research work at Amalgamated is on new chemicals in the textile, leather, and paper industries.

Information on Terramycin

John E. McKeen, F.A.I.C., president of Charles Pfizer & Co., Inc., 11 Bartlett Street, Brooklyn 6, N.Y., announces that this firm is producing an elixir of Terramycin, called Terrabon, which is particularly useful in pediatrics and geriatrics. The latest information about Terramycin and an outline of the proceedings of the Terramycin Conference held by the New York Academy of Sciences, June 16th and 17th, may be obtained from the company on request.

The Hiring of Chemists Over Forty-Five

Herbert F. Schwarz, F.A.I.C.

The Sherwin-Williams Company, Chicago 28, Ill.

(Presented at a recent meeting of the Chicago Chapter, AIC.)

THAT there is a problem in finding jobs for men over forty-five is too well-known to require extended discussion. Almost every week we hear of men who held important positions, were discharged without cause, and cannot find work. During the war, when most of the young men were in the armed forces and the colleges were not turning out their full quota of graduates, there was a reluctant acceptance by many organizations of older men. But now the want ads of newspapers and technical journals are almost unanimous in specifying men "under 30," or "30 to 40." The classic advertisement requiring "Ph.D. under 25 with 5 years experience" is unfortunately only too typical of the postwar search for youth.

Unfortunately, it is virtually impossible to obtain accurate statistics on the employment situation in the chemical industry with respect to men over forty-five. When asked whether they employ men over forty-five, a vast majority of employers say, "Yes!" So many do so that it is obvious that the replies are not accurate. There are two reasons for this; the first being that employers do not wish to let their company obtain an unfavorable reputation, the second being that when asked the question, the person answering thinks immediately of a man over forty-five (an exception) who was hired, and in all honesty replies, "Yes!" What is needed is an honest reply to the question, "What proportion of otherwise qualified men applying for work with your company are not hired only because they are over forty-five?"

To find out why many companies will not hire men over forty-five is also very difficult. Those employers who will state a reason for their action usually claim that hiring an older man upsets their pension plans or that they find that older men are not flexible enough to fit into their organization. The latter reason is legitimate; the former is very often not, since most pension plans are set up through insurance companies and are based on all employees so that the hiring of one man over forty-five will have no effect on the cost of the total pension plan.

Some of the real reasons for not hiring men over forty-five are: (1) Younger men who are anxious to get a start in their chosen field and may not have family responsibilities are

willing to work at much lower salary than men over forty-five will accept, or a conscientious employer would offer to an older man; (2) Because of the war and the great expansion of industry, many key positions in industry are filled by younger men, who, whether they realize it or not, will not permit a man older than themselves to work under them; and (3) A good many companies have rigid policies set up by the top management specifying the maximum age for new employees. These policies are set up for reasons which cannot be determined and apparently are as unchangeable as they are unreasonable.

A comparison between the ability of chemists over forty-five and men in other occupations to obtain jobs is not easy to determine. However, it is thought that chemists are somewhat more fortunate than others. One reason is that by the time a chemist is forty-five, he can very often establish a reputation in his field so that others know him and know what he can do. Even if he is known only to a few men in other companies, he is better off than many engineers, for example, who find it difficult to establish a reputation. Another reason is the fact that chemical industries have expanded rapidly in the last fifty years, and because of the expansion there have been many times when an employer was forced to hire a man over forty-five to get the man he wanted for a particular job. It remains to be seen what will happen if the chemical industries cease to expand so rapidly in the next twenty-five years when more and more of the younger men reach the "over forty-five" category.

The picture is not entirely black, for it is unquestionably true that capable men are not as often discharged as those unable to do good work, and of those who are discharged, the most capable are probably able to obtain satisfactory jobs eventually.

Constructive Suggestions

What can be done to improve the chances of a man over forty-five to get a job? What can be done to banish from every chemist over forty-five the haunting fear of losing his job and not being able to get another? Several constructive measures come to mind; others may be forthcoming if the INSTITUTE and other organizations study the problem as they should do.

1. Industrial companies should be urged to recognize their responsibility to the chemical profession to keep as many men over forty-five on their payrolls as possible, and to make a real effort to find places for men over forty-five who apply for jobs. There are many positions in research, development, plant operation, sales, and technical service that can be filled better by men over forty-five than by younger men, but there must be a

real desire by the employer to help older men before it is possible to fit the man to the job and *vice versa.* Dr. Vannevar Bush, in his address on "Human Enterprise" at the Ninetieth Anniversary Convocation of the Cooper Union, discussed the necessity of industries getting a new conception of the usefulness of older men to society and to industrial companies.

2. The AIC, the American Chemical Society, and other organizations should keep the subject alive, study the employment status of the chemist over forty-five, and continually hack away at the false concept held by some that a chemist can do creative work only when he is young. Certainly every effort must be made to change those company policies which state flatly that no man over forty-five may be hired, no matter who he is or what he can do.

3. Much can be done by organizations to aid men over forty-five to find jobs. Many chapters of the INSTITUTE and many sections of the American Chemical Society have special committees set up to aid their unemployed members in seeking work. These committees should give special consideration to men over forty-five, so that they are not forced to go to employment agencies and "men over forty-five clubs." The latter are sometimes useful, but they could be much more useful if directed by a chemical organization instead of an employment agency or a public-spirited individual. Their main defect as they are usually constituted is that they are composed of a heterogeneous group of men, each one of whom knows his field but not the field of the man he is to find a job for. After all, an accountant cannot sell a chemist to a chemical company any better than a chemist can sell a teller to a bank. If "men over forty-five clubs" are necessary, they should be directed by a chemical society so that one chemist would be selling the services of another.

Cuba's Industrial Possibilities

Francis Adams Truslow, president of the New York Curb Exchange, was appointed chief of a mission sponsored by the International Bank for Reconstruction and Development, to survey industrial potentials in the Republic of Cuba. Mr. Truslow stated that "three outstanding American research organizations will take leading parts in this economic and technical survey of Cuba . . . For the first time in history, Southwest Research Institute of San Antonio and Houston, Armour Research Foundation of Chicago, and Stanford Research Institute of California — all nonprofit, public service organizations—have pooled their resources and made them available for a single purpose." The joint operation will be coordinated by Dr. Harold Vagtborg, president of Southwest Research Institute.

Proposed AIC Employment Agency

The above was the subject of the first 1950-51 meeting of the New York Chapter, held October fifth at the Hotel Commodore, New York, N.Y.

The meeting, which was of the discussion type, was presided over by the new Chapter Chairman, Dr. Maurice J. Kelley. Dr. Walter J. Baeza gave the principal speech, which briefly and simply gave a history and the aims of the project. (See THE CHEMIST, Sept. 1950.) Dr. Charles J. Marsel discussed cooperation with University placement services, and Dr. Kelley summarized the experiences of two society-sponsored agencies which have been of service to chemists and engineers.

The discussion from the floor was lively, with nearly everyone of the more than fifty persons present taking part. A show of hands indicated that the group was almost unanimously in favor of the initiation of an AIC-sponsored employment agency for chemists. Dr. Kelley reported that nearly $4000. had already been pledged to provide working capital, and he urged all those in favor of the project to support it financially as well as morally, so that the agency can be created in the near future.

Perhaps the most frequently-asked question about the proposed agency is: "Will it be national in scope, or, because it was initiated by the New York Chapter, will it serve only the New York area?" The answer is that the agency will be national in scope. Positions available in the New York area are limited. Other industrial centers in the United States need chemists, and the proposed agency plans to serve on a national basis.

Aries Makes European Tour

Dr. R. S. Aries, F.A.I.C., at the invitation of several foreign governments, made a lecture-study tour of Western Europe this summer, where he reviewed industrial conditions in France, Belgium, Western Germany, Sweden, and England. Dr. Aries is president of R. S. Aries & Associates, 400 Madison Avenue, New York, He spoke on advancements in the chemical industry before the Societe de Chimie Industrielle in Paris; the 16th International Congress of Agricultural Industries in Brussels, the French Institute of Petroleum in Paris, and the Chemical Exposition at Frankfort, Germany.

Evans Research Elects

The board of directors of Evans Research and Development Corporation, 250 East 43rd Street, New York 17, N.Y., has elected S. F. Coneybear and E. C. Kenton vice presidents. Mr. Coneybear for the past five years has been development manager of the corporation. Mr. Kenton has been responsible for government research. Both will continue to serve in their present capacities.

Necrology

Norris R. Kosches

Norris R. Kosches, head of the Mathematics Department of Lyndhurst High School, Lyndhurst, New Jersey, died March 27, 1950, at the age of fifty-one. He was born in New York, N.Y. He received the B.S. degree from Newark College of Engineering, and the M.A. degree from Montclair State Teachers' College. He also studied at Rutgers University.

From 1923 to 1927 he taught science and mathematics in Newark, New Jersey. From 1927 to 1931, he was a teacher and engineer at Western Electric Company, Kearney, New Jersey, leaving to become a teacher at Lyndhurst High School.

He was a member of the American Association for the Advancement of Science, and of the National Science Teachers' Association. He was a Charter member of THE AMERICAN INSTITUTE OF CHEMISTS, joining in 1923 as a Junior Member and later being raised to Fellow.

William C. Bainbridge

William C. Bainbridge, technical director of H. Kohnstamm and Company, Inc., Brooklyn, New York, died July 6, 1950, after a long illness, at the age of sixty-seven. He was born in Brooklyn, N.Y. He received the B.S. degree in chemistry from Polytechnic Institute of Brooklyn in 1906, and immediately joined the Kohnstamm Company. Since then, he has been in responsible charge of the control and development of various types of intermediates, colors, and chemicals. He made possible the production of the first Certified Colors under the Food & Drug Act of 1906, and produced intermediates and colors when the foreign supply ceased during World War I. He prepared numerous papers and lectures relating to coal-tar food colors and pigments. He also instructed in chemical engineering at Polytechnic Institute of Brooklyn.

He was a member of Sigma Xi, Phi Lamba Upsilon, the New York Academy of Science, the American Chemical Society, the American Society of Testing Materials, the American Association of Textile Colorists and Chemists, and the American Institute of Chemical Engineers. He became a FELLOW OF THE AMERICAN INSTITUTE OF CHEMISTS in 1940.

Josiah P. Harmer

Josiah P. Harmer, president of Harmer Laboratory Co., Inc., Lansdowne, Pennsylvania, died August 8, 1950, of a heart attack while in his automobile on the Old Darlington Road. He was born in Philadelphia, July 1, 1894. His education included private instruction and courses in

organic chemistry at the University of Heidelberg. In 1912, he became chemist for the H. K. Mulford Company, leaving in 1914 to form his own company, where he manufactured biological dyestuffs and rare organic chemicals. Later, he and his wife added cosmetics to the firm's products. He was the author of several trade paper articles and held several patents.

During World War I, Mr. Harmer received the Distinguished Service Citation for the development of certain medicinal dyes. He was a past master of the Columbia Lodge of the Free & Accepted Masons of Pennsylvania. He was a charter member of the Pennsylvania Chemical Society. He was a member of the Franklin Institute and the American Chemical Society. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1937.

Edwal Appoints Director of Research

Dr. W. S. Guthmann, F.A.I.C., president of Edwal Laboratories, Inc., of Ringwood, Illinois, announces that Dr. R. L. Frank, on the faculty of the Department of Chemistry at the University of Illinois since 1940, has been appointed director of research of the Laboratories. Dr. Frank assumed responsibility for all of Edwal's research activities on September 15th.

Inquiry No. 102

I am a technician and have been with a large manufacturer for four years. Unless I spend a lot of time, effort and dough for further education, I will be stuck at this job until I can apply for Social Security benefits. My only knowledge is chemistry and I would like to get into the sales end—not only because it pays much better, but also because I think it would be better suited for me. Some advice please!

Answer

You must make sure first that you are better suited to sales than to a lab. If you are the kind of guy that likes to meet people; that can talk, not only persuasively but also authoritatively; that can grasp problems and situations fast and come up with solutions even faster—then try the sales end. The best opening is to get some sales experience—any kind that will teach you the fundamentals of basic selling. That experience coupled with your chemical experience may land you a job with a chemical sales firm.

Inquiry No. 103

How does a chemist get into advertising? I have five years of experience in physical chemistry, but I think I'd do better in an advertising agency than I'm doing in a laboratory. How do I get going?

Answer

Chemical advertising is a very specialized field, and by no means is the B.S. in chemistry the sole requirement. Take some advertising courses and make sure that you would fit into the field. Go through some of the chemical publications and try your hand at the ads.

COUNCIL

OFFICERS

President, Lawrence H. Flett
President-elect, Lincoln T. Work
Secretary, Lloyd Van Doren
Treasurer, Frederick A. Hessel

COUNCILORS

Harry Burrell, *New Jersey Chapter*
C. C. Concannon, *At-Large*
M. L. Crossley, *At-Large*
Gustav Egloff, *Chicago Chapter*
Gustav Egloff, *Past President*
G. J. Esselen, *At-Large*
M. J. Hiler, *Ohio Chapter*
L. B. Hitchcock, *At-Large*
H. O. Kauffmann, *Niagara Chapter*
R. H. Kienle, *At-Large*
Harold A. Levey, *Louisiana Chapter*
Martin Meyer, *New York Chapter*
C. P. Neidig, *At-Large*
L. F. Pierce, *Los Angeles Chapter*
Donald Price, *At-Large*
Louis N. Markwood
Washington Chapter
H. Robinette, *Pennsylvania Chapter*
Maurice Siegel, *Baltimore Chapter*
Foster D. Snell, *Past President*
Raymond Stevens
New England Chapter
Florence E. Wall, *At-Large*
James R. Withrow, *At-Large*

September Meeting

The 270th meeting of the National Council was held September 13, 1950, at 6:00 p.m., at The Chemists' Club, 52 E. 41st St., New York, N.Y. President Lawrence H. Flett presided.

The following officers and councilors were present: Messrs. L. H. Flett, K. M. Herstein, F. A. Hessel, M. J. Hiler, M. J. Kelley, M. Meyer, H. Robinette, Jr., Miss F. E. Wall, L. T. Work, and L. Van Doren. V. F. Kimball was present.

The minutes of the preceding meeting were approved.

President Flett in introducing the AIC season of activities, welcomed the councilors as "representatives of the most wonderful group of people ever gathered together in an organization. The Councilors have a particular interest in encouraging progress in the profession." He stated

that "we want to bring about a closer relationship between the management of the companies and the chemists. People are becoming more conscious of employer-employee relationships. We want the president of the company to become acquainted with the research chemist, who can be both his problem and his success."

Miss Wall reported on the AIC dinner that had been held in Chicago during the American Chemical Society meeting. Friendliness distinguished this dinner at which each participant was asked to introduce and say something about the person on his right.

Preliminary plans for the 1951 Annual Meeting at Niagara Falls call for a three-day program, one session to be devoted to "The Education of Chemists."

The Treasurer's report was presented and accepted.

A meeting of the Board of Directors was scheduled to be held at the October meeting of the Council.

The Secretary reported that the membership totals 2484 members. He announced with regret the following deaths:

Harley A. Nelson, F.A.I.C.
On March 21, 1950

Ed. M. Hanzely, F.A.I.C.
On June 21, 1950

Samuel G. Trepp, F.A.I.C.
On June 23, 1950

William C. Bainbridge, F.A.I.C.
On August 6, 1950

Josiah P. Harmer, F.A.I.C.
On August 8, 1950

A letter from the Wyandotte Chemical Company requesting permission to reprint the article by Dr. Roger Adams, which appeared in the February, 1950, issue of THE CHEMIST, was presented, and permission granted.

President Flett appointed Dr. Work chairman of the Committee on Constitutional Revision, with power to appoint other members to the Commitee.

Mr. Robinette, reporting for the Pennsylvania Chapter, announced that the first meeting will be held in October. "We shall try to do all we can for members of the AIC in this Chapter area."

Mr. Hiler reported that a meeting of the Ohio Chapter was held in Dayton, July 20th, at which Mr. Olson spoke on ways and means to interest chemists in the AIC. Local dinners are planned for each district of the Ohio Chapter.

Dr. Kelley announced that the program for the New York Chapter is nearly complete. Five meetings are planned: Oct. 5th, Dec. 7th, Jan. 25th, Mar. 29th, and May 17th. The first meeting will be a discussion meeting on the AIC Employment Project. (An account of this project was carried in the Sept. issue of THE CHEMIST.)

Dr. Hessel announced that the South American Congress of Chemis-

try will be held in May, 1951, at Lima, Peru. It was suggested that the AIC send a message of greeting. President Flett appointed the following Committee: Dr. Hessel, Dr. Van Doren, Dr. Baeza, and Miss Wall.

The Council suggested several sources for "unusual but interesting" articles for THE CHEMIST. Councilors were urged to write editorials. The problem of space in the magazine was discussed. Since this depends upon the amount of advertising carried each month, it was suggested that each member of the Council and each Chapter Chairman be sent information which would help them to call the attention of qualified advertisers to THE CHEMIST.

President Flett was asked to send a delegate to the Meeting of the National Safety Council in New York, N.Y., September 27th.

The following new members were elected:

FELLOWS

Dorr, John V. N.
Chairman, Board of Directors, The Dorr Company, Engineers, 570 Lexington Avenue, New York, N.Y.

Flexser, Leo A.
Group Chief, in Manufacturing & Development Departments, Hoffmann-La Roche, Inc., Nutley 10, New Jersey.

Gregory, Spafford M.
Consulting Chemist and Chemical Engineer, 3850 Olive Avenue, Long Beach 7, California.

Havens, Frank B.
Chemist, Technical Field Service, Pigment Department, Calco Chemical Division, American Cyanamid Co., Bound Brook, N.J.

Hoerr, Charles W.
Research Chemist, Armour & Company, 1425 W. 42nd Street, Chicago 9, Illinois.

Ofner, Alfred
Technical Development Department, Hoffmann-La Roche, Inc., Nutley, N.J.

Otto, Cliff R.
Chairman, Department of Science, Central State College, Edmond, Oklahoma.

Ross, Douglas H.
Assistant Manager, Product Development Department, The Solvay Process Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, New York.

Semple, Robert B.
President, Wyandotte Chemicals Corporation, Box 111, Wyandotte, Mich.

Temmerman, John A.
City Chemist, Department of Public Safety, City of Rochester, New York

MEMBERS

Castorina, Thomas C.
Chemist, Research Section, Picatinny Arsenal, Dover, N.J.

Gilbert, Theodore E.
Director of Research, Bisonite Company, Inc., 128 Lakeview Avenue, Buffalo, N.Y.

Hader, Rodney N.
Associate Editor, Chemical & Engineering News, Industrial & Enginering Chemistry, American Chemical Society, 25 East Jackson, Room 819, Chicago, Ill.

Helf, Samuel
Research Chemist, Chemical Research Section, Picatinny Arsenal, Dover, New Jersey.

Pomeroy, John H.
Associate Chemist, Division of Biology, Argonne National Laboratory, Box 5207, Chicago 80, Illinois.

ASSOCIATES

Davis, Emanuel
Chemist, Chemical Research Section, Picatinny Arsenal, Dover, New Jersey.

Fierce, William L.
Research Chemist, Armour & Company, 1425 West 42nd Street, Chicago, Illinois.

Minsky, Isadore
Organic Chemist, P-2, Chemical Research, Picatinny Arsenal, Dover, New Jersey.

Pinter, Rudolph
Chemist, Chemical Research Section, Picatinny Arsenal, Dover, New Jersey.

RAISED FROM MEMBER TO FELLOW

Mitchell, Charles M., Jr.
Chief Control Chemist, Smith, Kline & French Laboratories, 1530 Spring Garden Street, Philadelphia 1, Pa.

Proctor, Charles D.
Research Assistant in Pharmacology & Physiology, Stritch School of Medicine, Loyola University, Chicago, Illinois.

RAISED FROM ASSOCIATE TO FELLOW

Riener, Thomas W.
Chemist, High Polymer, Industrial Rayon Corporation, Cleveland, Ohio.

Dr. Gustav Egloff, Hon. A.I.C., spoke at the dedication ceremonies of the Deep Rock Oil Corporation, Cushing, Oklahoma, September 12th, in connection with the installation of new refining facilities. On September 14th, he participated in a panel discussion at the 48th annual meeting of the National Petroleum Association, Atlantic City, N.J. On October 16th, he addressed the Kiwanis Club, Grand Rapids, Michigan, and on October 17th, the Rotary Club, Milwaukee, Wisconsin, on "The Oil Powers of the World."

Local Chapter News

C. P. Neidig, F.A.I.C.

Baltimore

Chairman, Dr. Walter Kuhl
Vice Chairman, Dr. Norris Matthews
Secretary-treasurer,
J. Bernard Edmunds
Representative to National Council,
Maurice Seigel
Reporter to The Chemist,
Ralph W. Lamenzo

The Baltimore Chapter met September 27th to elect the officers listed above. Albin H. Warth was elected to the executive committee of the Baltimore Chapter, on which Marc Darrin, preceding Chapter chairman will also serve. It has been the custom for the vice chairman of the Chapter to be named chairman of the Program Committee. Because Dr. Matthews is in Texas on leave of absence, George W. Cromer was appointed acting chairman of the Program Committee until Dr. Matthews' return. It is planned to schedule about four meetings with major emphasis on round table discussions in which several members participate.

Chicago

Chairman, Bruce M. Bare
Chairman-elect, Dr. W. B. Hendrey
Vice Chairman, Dr. B. S. Friedman
Secretary-treasurer,
Dr. Glen Hedrick
Representative to National Council,
Dr. Gustav Egloff

The Chicago Chapter met October 13th at the Furniture Club of America, Chicago, Illinois, to present its 1950 Honor Scroll to Dr. Carl S. Miner. Dr. Ward V. Evans, professor of chemistry, Loyola University spoke on "Dr. Miner—A Friend of Chemists." Dr. F. N. Peters, vice president, The Quaker Oats Company, spoke on "Minerology—a Midwest Phenomenon", and Dr. Barbara M. Parker, entomologist, The Miner Laboratories, spoke on "Chemist in the Kitchen." (The latter two papers appear in this issue of THE CHEMIST.) The presentation of the Honor Scroll to Dr. Miner was made byAIC president - elect, Dr. Lincoln T. Work. Dr. Miner responded with the paper, "This Thing Called Science" (see page 427).

The meeting was most successful with two-hundred and twenty-one persons in attendance at the dinner. A cocktail party, given by the Commercial Solvents Corporation, preceded the dinner and program.

New Jersey

Chairman, C. A. Amick
Chairman-elect, Peter J. Gaylor
Secretary, Dr. H. W. Mackinney
Treasurer, Dr. E. R. Hanson
Representative to National Council,
Harry Burrell

Dr. R. M. Burns, chemical director of the Bell Telephone Laboratories, will speak on "Chemists in the

Electrical Industry", at the New Jersey Chapter meeting to be held Thursday, Nov. 30th at the Esso Research Center, Park Ave. and Route U.S. 1, Linden N. J. The meeting will start at 7:30 p.m. and will be preceded by a dinner ($2.00) at 6:30 p.m. in the cafeteria at the same location. For dinner reservations, telephone W. H. Smyers, Elizabeth (N.J.) 5-2000, ext. 855, by Nov. 24th.

Dr. Burns will outline the importance of the widely diversified fields of chemistry which are intimately involved in the electrical industry, including at least 10 of the 31 groups classified in *Chemical Abstracts*. Both chemists of broad technical background and highly specialized chemists are required to handle and coordinate the chemistry of organic and inorganic materials, rubbers, resins, varnishes, textiles, insulating oils, porcelain and other refractories, metallurgical problems, electronic equipment, etc.

The speaker will also emphasize some of the most important recent developments, and show how they widen the horizons for the chemical profession.

Dr. Robert M. Burns, whose office with the Bell Telephone Labs. is at 463 West St., New York 14, N.Y., received the A.B. degree in 1915 from the University of Colorado, the A.M. degree in 1916, and the Ph.D. degree from Princeton in 1931. He also was awarded the Honorary D.Sc. by the University of Colorado in 1945. In his activities in the N.Y. Section of the American Chemical Society, he has served as director, 1947-49, chairman-elect. 1948-49, and chairman 1949-50.

The New Jersey Chapter met October 10th at the Public Service Auditorium, Newark, N.J.

The speaker was Dr. Johnson O'Connor, founder and director of the Johnson O'Connor Research Foundation, 11 East 62nd St., New York, N.Y. (formerly of the Stevens Institute of Hoboken, N.J.). He spoke on "Aptitude Studies (human engineering) as Applied to Chemists and Chemical Engineers."

This meeting was open to the public, and special invitation was extended to members of the AIC, the American Chemical Society, and other chemical engineering societies, chemistry teachers, chemistry department heads and vocational guidance advisors in high schools and colleges; corporation employment and employee-relations managers, and to other persons interested in making sure that all persons in the chemical field (or who are not but perhaps should be) are making maximum use of their inherent aptitudes or talents. Special invitation was also extended to college and high school students who are planning to enter the chemical field.

An informal dinner was served at 6:30 p.m. at the Carlton Hotel, Newark, N.J.

Dr. O'Connor discussed his experience of more than twenty-five years in trying to learn which jobs required what inborn abilities, then determining means of measuring these talents, and finally, assembling these traits into work patterns which would help people to understand themselves and what they are best fitted for. Many persons in different kinds of work were measured scientifically to determine what traits were characteristic of those outstanding in their fields of work, and eventually a number of individual traits were isolated (like the chemical elements by analogy), and it was found that certain combinations of these traits (like chemical compounds by analogy) where characteristically present or absent in the large majority of persons who had become outstandingly successful in certain careers. About 300,000 persons have been tested, and the present rate is about 30,000 yearly. Seventeen primary aptitudes have been isolated and can be measured with reasonable accuracy. Other tests are in the experimental stage.

The primary aptitude for an engineer is structural visualization—ability to think in three dimensions. For work involving specialized knowledge, an engineer should be extremely subjective, but for executive and some administrative work, he should be objective. Dr. O'Connor discussed the difficult problems which arise from these conflicting requirements, and how best to solve them. He also discussed other situations where discontent and frustration of an employee was due to lack of use of some aptitude he *has* or due to the requirement of an aptitude he *did not have*.

The aptitude pattern of a typical research chemist is extremely subpective personality, high structural visualization, inductive and analytical reasoning, good observation and good vocabulary, both general and scientific, and, for laboratory work, also tweezer dexterity. The extremely subjective person with high inductive reasoning and high structural visualization is the problem solver.

Dr. O'Connor also outlined briefly the aptitude patterns which are most successful in a number of fields which are related to the chemical field, such as that of the executive, salesman, businessman, doctor, and teacher.

Although the tests were originally designed only for adults, they are now available for children as young as nine years old, and the Laboratory recommends that the tests be given to children rather than waiting until later years when a change in direction becomes more difficult. However, thus far, the majority who take the tests are adults. The Laboratory tests people regularly for several hundred industrial organizations and for many schools.

Dr. O'Connor is a graduate in philosophy from Harvard University, and for some years was assistant to Percival Lowell in astronomical mathematical research. In 1922, when Dr. O'Connor headed the engineering department at the General Electric Company at West Lynn, Mass., he started the aptitude studies which eventually developed into the Johnson O'Connor Research Foundation and the Human Engineering Laboratory. It remained a project of the General Electric Company until 1931. The year of 1928 was devoted to studying the problem of industrial relations under the Wertheim Fellowship from Harvard. For three years after 1931, the work was extended at Massachusetts Institute of Technology, and in the meantime it was also sponsored by the Stevens Institute of Technology; after the war, it was transferred to New York. N.Y. There are now branches of the Human Engineering Laboratory in nine other cities. Dr. O'Connor has written a book, *Psychometrics*, published by the Harvard University Press, to explain the more technical aspects of this work. He has written many brochures and technical reports, published by the Human Engineering Laboratory, about various individual aptitudes and certain combinations of aptitude patterns.

New York

Chairman, Dr. M. J. Kelley
Vice Chairman, Dr. A. F. Guiteras
Secretary-treasurer, G. A. Kirton
Representative to National Council, Dr. Martin Meyer

This Chapter will meet, November 10th, at the Downtown Athletic Club, New York, N.Y. Dr. Kenneth S. Pitzer, director, Division of Research, U.S. Atomic Energy Commission, will speak on "Chemistry and Physics Starting One Millisecond after an Atomic Explosion." Dr. William L. Laurence, science editor, New York Times, will speak on "The Atomic Bomb."

Michaels Becomes Assistant Director

Dr. Alan S. Michaels, M.A.I.C., assistant professor of chemical engineering at Massachusetts Institute of Technology, recently left M.I.T. to accept a position as assistant technical director of the Seco Venture, Cambridge, Mass.

Technical Report Writing

Florence E. Wall, F.A.I.C., has been engaged by the Management Research Division of Temple University, Philadelphia, to teach a course of ten lectures on Technical Report Writing.

New Address

Interchemical Corporation announces the removal of its executive and administrative offices to 67 West 44th Street, New York 18, N.Y.

For Your Library

Science is a Sacred Cow

By Anthony Standen. 1950 *Dutton.* $2.75

According to the jacket, Mr. Standen was born in England of a British Army Officer and a Bostonian lady. This is unimportant. It is more to the point that Mr. Standen, spiritually, is in the direct line of descent from the child hero of Hans Christian Anderson's delightful story of the Emperor's New Clothes and from Tyl Ulenspiegel. This is shown by his naive liberality with the truth, which others, realizing its value, use more sparingly. Further, his words have almost the impact of Tyl's gesture of disregard for his fellow townsmen.

What Mr. Standen has to say, he epitomizes briefly: "Thus the world is divided into Scientists, who practice the art of infallibility, and non-scientists, sometimes contemptuously called 'laymen' who are taken in by it." The general public, having continual evidence of the triumphs of science and lacking knowledge of the means that bring them into being, endows science with superhuman, almost miraculous powers. Some of this awesome regard is transferred to the scientists which they, being too, too human cannot refuse and ultimately come to believe in greater or lesser part.

This thesis Mr. Standen develops, first by consideration of the place of science in education, and second by analysis of the right of various sciences to the claims made for all of them. He gives highest place to mathematics, although mathematics, since it deals exclusively with abstractions is not a science in his sense at all. Physics follows with high rank, and then in descending order, chemistry, biology, psychology, and lowest, the social sciences. Each of these, he demonstrates, must perforce depart from the ideal of scientific method in greater and greater degree.

We have then, a strong argument against the place of science in a liberal education. It does not, according to Mr. Standen, conduce to the open mind, to clear thinking, to the continued search of knowledge, to the broad cultural education that it has been extolled for. We have also a strong argument against the infallibility of science and against its value in forming the judgments of social or ethical goods that are required in a functioning society. All of this, Mr. Standen presents at length but without ever once touching on the field of medicine. Whether he is afraid to tackle the organized propaganda represented here or whether he considers that medicine is not sufficiently a science to justify his attention, the reviewer has no means of judging. Certainly his caustic comments on this particular field of activity would have been enjoyable. Even without them, however, the book, without being taken at its face value, can serve as a useful warning signal, for which reason it should be read by every practicing scientist.

By and large, Mr. Standen's criticisms of science and of the attitudes of scientists are well-taken, yet one questions very gravely whether the book should have been published on the ground that it lends aid and comfort to the obscurantist forces which are crawling out of their rat-holes and becoming increasingly evident around us. No serious observer of the times can doubt that we need more light. The shouts of joy with which Mr. Standen's book has been greeted by the powers of darkness, indicate that the question whether his book will serve to bring about more light or the contrary, remains to be answered. To those whose fidelity to knowledge, to truth, and to humanity is unquestioned, Mr. Standen's book will be an enjoyable experience.

Most of us carry in our hearts a little survival of Peck's Bad Boy, which will be stimulated by reading the book and thus make for a pleasant few hours.

—Karl M. Herstein, F.A.I.C.

A Textbook of Biochemistry

By Philip H Mitchell. Second Edition. McGraw Hill Book Company. 695 *pp.* $6.00.

This is a well-written, second edition of a general textbook on biochemistry, useful either to the beginner in the field or to the advanced student whose major interest is elsewhere. The bibliographic references are good.

—Dr. Frederick A. Hessel, F.A.I.C.

Scientific Autobiography

By Max Planck. Philosophical Library. 1949. 192 *pp.* 8½ x 5⅜ . $3.75.

An excellent translation by Frank Gaynor. Planck, born a Protestant in Kiel, was a mathematical physicist, ever formulating the experimental results of others. Examining the experimental data of Lummer and Pringsheim in relation to Wien's Law of Spectral Energy Distribution, he found a function which was proportional to the energy for small energy values, and for large energy values, proportional to the square of the energy. He developed from this his radiation formula. He then proceeded to find the significance of his formula and developed the concept of the elementary quantum.

Among his philosophical observations, he observed that a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.

—Dr. John A. Steffens, F.A.I.C.

The Story of Silk

By William F. Leggett. (Foreward by Daniel E. Douty.) Lifetime Editions, New York, 361 *pp.* 5" x 8". $5.00.

We are often unconscious of the romantic antiquity that lies behind most familiar things. Of the familiar fibers, silk alone reveals that quality of mysterious beauty that hints of its historical journey from Oriental origins through paths of high artistic importance and economic adventure. This book for the first time collects this fascinating story into one volume.

For centuries in the Orient, silk was reserved exclusively for robes of royalty. As the knowledge of silk spread westward, this idea was perpetuated until even the Romans believed that "He who was robed in silk was fit to rule." This exclusiveness finally slipped away with the advance of commerce between nations and the rise of the wealthy merchant class who became leaders of limited areas, and who in time became dukes, counts, and lords. They began wearing the precious fabrics, though for centuries, silk of the color purple was reserved for royal raiment, until commerce finally made silk available to all.

This book follows the path of silk through China, India, Japan, Persia, Egypt, Arabia, Palestine, Greece, Rome, Byzantium, Sicily, Italy, Spain, France, England, Germany and the Low Countries, and even into the United States, where the patience necessary to raise silkworms failed, and wild speculation developed in the sale and resale of mulberry trees, originally intended to furnish food for silkworms. The silk moth and its care and the wild silk moths are treated in two chapters. Another chapter contains notes on silk lace. A glossary and a reference list are included.

Tightly packed with information about silk and its journey through history, this book is a worthwhile contribution to the literature of textiles. It is, moreover, good reading.

V. F. K.

The Chemical Analysis of Aluminum

Aluminum Company of America, Pittsburgh 19, *Pa.* 1950. *Paper-covered, wire-bound.* 150 *pp.* $1.00.

This manual is now available in its third edition. It gives in detail procedures for chemically analyzing aluminum and its alloys, and represents the official practice of ALCOA. It contains many methods developed and standardized by the company's analytical chemists under the direction of H. V. Churchill. Procedures are given for the determination of forty elements. A bibliography provides references for each method.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Walter de Gruyter & Co., Berlin W. 35: *Polarographische Arbeitsmethoden,* by Mark von Stackelberg, 1950, 478 pp. with 113 ill., DM 28. Polarography, discovered by J. Heyrovsky of Czechoslovakia about 25 years ago, has developed into an important branch of analytical chemistry. Its methods, applications, apparatus, and theoretical foundation are described; the more than 1200 abstracts from literature (including Russian and Japanese) filling 100-odd pages, are a great asset to this volume.

Wilhelm Knapp, Halle-Saale: *Laboratoriumsbuch fuer die Industrie der Riech-*

stoffe, by Oskar Simon and H. K. Thomas, 5th ed., 132 pp. with 10 ill., DM 6.75. A laboratory book giving the most dependable methods for the determination of a great variety of natural and synthetic aromatic substances.

Johann Ambrosius Barth, Leipzig C 1: *Chemisches Praktikum*, by R. Schwarz and P. W. Schenk, 4th ed., 126 pp., DM 4.20. A compilation of 211 simple qualitative and quantitative chemical tests for students of medicine and other sciences. • *Austausch-Adsorbentien in der Lebensmittelindustrie*, by Robert Griessbach, 1949, 100 pp., DM 3.60. The author, who received the German National Prize for 1949, discusses the use of ion-exchange resins and other absorbing substances in the production and purification of various foodstuffs, beverages, vitamins, etc. A large chapter relates to beet sugar.

A. Hartleben Verlag, Wien: *Chemisch-technische Rezepte*, by Othmar Unzeitig, 1949, 184 pp., DM 5. This is volume 423 of "Chetebi", a chemical-technical book series. It contains over 1000 receipes for the small-scale production of a great variety of widely used goods.

Verlag Hans Carl, Nuernberg: *Alchemie und Heilkunst*, by Alexander von Bernus, 1948, 212 pp., DM 7.50. Four articles and a few poems dealing with alchemy and a lecture given by the homeopath, R.A.B. Costerhuis.

Dr. Alfred Huethig Verlag, Heidelberg: *Das grosse Rezeptbuch der Haut-und Koerperpflegmittel*, by Karl Rothemann, 1949, 588 pp., DM 38. A collection of 318 modern recipes used in the manufacture of cosmetics; two introductory parts discuss in detail vitamins, fats, oils, and other raw materials of cosmetic preparations. The chapter on sources of supply lists many American firms.

Verlag Lambert Schneider, Heidelberg: *Wissenschaft ohne Menschlichkeit*, by Alexander Mitscherlich and Fred Mileke, 1949, 312 pp. with 8 ill., DM 9.60. There is not much chemistry in this horrifying book, but a few chemicals and drugs are mentioned (e.g., sulfas, phosgene, etc.) which were used in so-called scientific experiments with helpless inhabitants of German concentration camps. These senseless experiments were undertaken by physicians, some of them well known as teachers, for the only purpose of satisfying the perverted wishes of Naziism. The volume brings a part of the Nuernberg process against (only) 20 Nazi physicians and three government officials. Whoever reads this book should have good nerves. If he can hold out to the end, the reader will wonder whether the things he read did not occur in the middle ages, so hard is it to believe that a civilized people, particularly the scientists and leaders, could fall so low in this "enlightened" era.

Editio Cantor, Aulendorf/Wttbg.: *Rote Liste*, 1949, 716 pp. An alphabetical listing of 4500 pharmaceutical preparations compiled by the association of the pharmaceutical industry in Western Germany, with information as to composition (qualitative, if not quantitative), indication, dosage, unit-sizes and prices. Seemingly, the German chemical-pharmaceutical industry has made great progress in the last few years.

Dr. Alfred Huethig Verlag, Heidelberg: *Riechstoffe, Seifen, Kosmetika*, by Hugo Janistyn, 1950, 2 vol. (735 + 543 pp. 15 ill.), DM 98. An excellent work which includes all branches of the cosmetic industry. Volume 1 contains an encyclopedia of the cosmetic raw materials (444 pp.) and descriptions of the various aromatic substances used to perfume cosmetic preparations. Volume 2 consists of 3 parts which deal with the physical and chemical properties of solutions, powders, suspensions, and emulsions: with cosmetic soaps; and with cosmetic preparations—a total of almost 1400 selected formulas! Author and publisher are to be congratulated on a big job well done. They created a new standard work of great practical value.

Verlag Birkhaeuser, Basel: *Die theoretischen Grundlagen der analytischen Chemie*, by G. Haegg, 1950, 197 pp. 26 ill., SFr. 22. This is a translation by H. Baumann of the famous Swedish textbook about the theoretical foundation of analytical chemistry, with emphasis on acid/basis - solubility - redox (reduction-oxidation) equilibria. A number of laboratory examples are given to illustrate the chemical theories developed in the text.

Information

Available from National Bureau of Standards, U.S. Department of Commerce, Washington 25, D.C.:

RP1982 Acidic Dissociation Constant of Ammonium Ion at 0° to 50°C 12 pp. 10 cents.

RP2001 Electrophoresis of Modified Collagen. 8 pp. 10 cents.

RP2002 Infrared Absorption Spectra of Cyclo-Hydrocarbons. 12 pp. 10 cents.

RP2004 Refractive Index of Natural Rubber for Different Wavelengths. 8 pp. 10 cents.

RP2005 Metastable Transitions in Mass Spectra of Hydrocarbons. 6 pp. 10 cents.

RP2009 Fundamental Aspects of the Reaction of Oxygen with Carbon Absorbents. 10 pp. 10 cents.

RP2018 Mechanisms for the Formation of Acetylglycosides and Orthoesters from Acetylglycosyl Halides. 11 pp. 10 cents.

"Unitized Laboratory Furniture". Leaflet Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Precision-Dow Robomatic Refractometer." Description of a continuously controlling, indicating and recording refractometer for use in process control. Precision Scientific Company, 3737 W. Cortland St., Chicago 47, Illinois.

"Perkin-Elmer Instrument News", new quarterly publication of The Perkin-Elmer Corporation, Glenbrook, Conn., devoted to the use of modern electro-optical instruments in industry.

"New Quality Control Slide Rule." Leaflet. Pickett & Eckel, Inc., 1111 S. Fremont Ave., Alhambra, Calif.

"New TEMCO Hot Plate." Leaflet. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Eagle-Picher Fireproofing Cement". 8-page brochure. The Eagle-Picher Sales Co., Industrial Insulation Div., American Bldg., Cincinnati 1, Ohio.

"Price Reductions. Book list with new prices as a result of devaluation of Dutch guilder. Elsevier Publishing Co., Inc., 215 4th Ave., New York 3, N.Y.

"The Waverly Handbook". Petroleum information. $2.00 per copy. S.G. Symons, Editor, 5604 Fifth Ave., Pittsburgh 6, Pennsylvania

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"New Glas Flowmeter." Fischer & Porter Co., Hatboro, Pa.

"Lactic Acid and Lactates." 30-page reprint of private report prepared for Sugar Research Foundation, now released. Available from R. S. Aries, F.A.I.C., R. S. Aries & Associates, 26 Court St., Brooklyn 2, N.Y.

"Tripadene (Brand of Adenosine Triphosphate) Ampoules." Information. Schwarz Laboratories, Inc., 202 E. 44th St., New York 17, N.Y.

"Research Bulletin No. 39. German Progress in the Field of Inorganic Chemicals." List of translations available. Research Information Service: 509 Fifth Ave., New York 17, N.Y.

"Planned Lighting Equipment Selection Guide." Benjamin Electric Mfg. Co., Des Plaines, Ill.

"Paracol Wax Emulsion". Leaflet. Hercules Powder Co., Wilmington, Delaware.

"Atomic Energy Commission Official Records Special Supplement No. 1., of the United Nations." 75 pp. English and French. $.80 Columbia University Press, Morningside Heights, New York, N.Y.

"New Precision Hydraulic Relief Valve. Pressure settings from 100 to 5,000 p.s.i." Hydraulics Div., Pantex Mfg. Corp., Pawtucket, Rhode Island

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"Safti-Mitt Handpads." Leaflet. General Scientific Equipment Co., 27th & Huntingdon Sts., Philadelphia 32, Pa.

"Instrumentation in Relative Humidity, Temperature Pressure." The Emil Greiner Co., 20-26 N. Moore St., New York 13, New York

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"High Consistency Rotational Viscometer." Information Sheet. Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.

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—John Teeple

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Professional Services

National Council Meetings

Meetings of the AIC National Council are scheduled to be held at The Chemists' Club, 52 E. 41st Street, New York, N.Y. on the following dates:

January	10, 1951
February	14, 1951
March	14, 1951
April	11, 1951
June	13, 1951

Though previously announced, no Council meeting will be held in December.

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